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From Egyptian Science to Victorian Magic: On the Origins of Chemistry in Victorian Histories of Science

SUSAN HRONCEK

The Victorians' complex, often contradictory regard for the origins of chemistry in the Middle East is perhaps best exemplified in a footnote to H. Rider Haggard's *She* (1887). The British narrator, Horace Holly, describes Ayesha, a woman of Middle Eastern origin, as "a great chemist" who "had one of the caves fitted up as a laboratory, and although her appliances were necessarily rude, the results that she attained were . . . sufficiently surprising" (184n). Despite his surprise at Ayesha's accomplishments, Holly calls chemistry her "only amusement and occupation" (184n), as though it is merely a hobby—one, furthermore, that comprises haphazard experiments. For Holly, both Ayesha's gender and ethnicity devalue her authority as a chemical practitioner, and thus her practice of chemistry will always appear to him, a British academic, as more akin to sorcery or witchcraft than to the "modern" chemistry of Victorian laboratories and factories. Ayesha's dangerous combination of the Eastern, feminine, and occult would prove a popular means of fictionalizing major sources of concern regarding the origins of chemistry beyond the borders of Western materialist practice.[1] Such fictional representations were significantly influenced by contemporaneous histories, popular science articles, and occultist discourses that characterized chemistry, its origins, and its relationship to the occult within frameworks that largely supported British Victorian perceptions regarding how a science was defined, including what constituted "legitimate" scientific practice.

Chemistry's origins in the Middle East and alchemy challenged its position as a legitimate, materialist science in a period marked by both imperial anxieties and tensions between a growing occultist movement and the practical uses of chemistry in, for instance, the pharmaceutical or textile industries. Despite its prominent status as the "most practically-relevant science" of the nineteenth century because of its key role in industrial and medical innovations (Donnelly 195), chemistry continued to play an ambiguous role in the nineteenth-century public imagination (Levere 190; Schummer 100). Chemistry's origins at what Roger Luckhurst calls "the imperial margin," where "narratives concerning occult relation . . . abounded," blurs, and indeed challenges, the distinction between Western institutional science

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and a specifically Eastern, or imperial, magic ("Knowledge" 200). Similarly, these origins influence the ways in which, as Gillian Beer argues, chemistry is simultaneously uncanny and homely, capable of incredible transformations yet "caught into the ordinary processes of living" (322). While recent historians of science predominately refer to chemistry's development in early modern Europe (Călian 173–74; Principe 307; Weyer 66–67), the "time-haunted" Victorians (Gilmour 245), with their obsession with ancestry and legitimacy, instead probe the science's earliest practice. Yet, by tracing the lineage of chemistry, the Victorians discovered a science whose practitioners employed methods they would regard as suspiciously mystical but whose key technological innovations—distillation, filtration, and nomenclature—were developed not by Europeans but by Middle Eastern and African peoples.

In this article, I examine the representation of ancient Egypt and the Middle East in nineteenth-century discourses concerning chemistry, bringing to light the conflicting narratives of the history of chemistry that emerged during the Victorian period. For instance, while eminent chemists like Thomas Thomson and Ernst von Meyer hailed Middle Eastern peoples as the creators of modern chemistry, scientific philosopher William Whewell outright denied that the East had any influence over the development of Western science. This debate filtered down to such popular periodicals as *Household Words*, in which lay authors drew more specific links between the history of chemistry and, for instance, British technological excellence or occultist challenges to the institutionalization of science. Central to these various narratives are two questions: whether knowledge derived in the East is legitimate and authoritative, and whether the historical conflation of magic and natural philosophy can, or indeed should, be reconciled with post-Enlightenment scientific ideology. The variance between those histories, particularly those that outright denied the Middle Eastern origins of chemistry, demonstrates the degree to which Victorian authors were prepared to manipulate history in their struggle to define chemistry and legitimize its practice despite Eastern and occult influences. The texts that I analyze comprise only a sample of a larger discourse on the history of chemistry that flourished in the Victorian period and expanded beyond scientists alone. Some texts were attached to authors or publications of renown and can indicate the prominence of this subject within both scientific discourse and the popular press; others were written for specialized, even exclusive, audiences, but they are no less revealing of Victorian attitudes toward the relationship between chemistry, alchemy, and Eastern mysticism. These texts emerged from disparate contexts, but their surprising similarities bring to light popularly accepted beliefs about chemistry that shaped how the wider Victorian population perceived the science: either as a regressive threat to society or the key to a new century of technological progress.

SCIENTIFIC PERSPECTIVES ON THE ORIGINS OF CHEMISTRY

Throughout the nineteenth century, historians of chemistry contended with evidence that the Middle East, by then a colonized region, had produced the advanced engineers, metallurgists, and chemists who had founded modern scientific practice. Consequently, the origins of chemistry in the Middle East became a contentious and surprisingly well-publicized subject, appearing in histories of science and chemistry, public lectures by scientific populists, and articles in major periodicals. This was, after all, a period when the Middle East, and the East in general, was denigrated in Orientalist discourse as "debased, unclean, mystic, and bloody" at the same time as it was recognized as a source of knowledge, even a cradle of civilization (Marsh 297).[2] These contradictions resulted in histories of chemistry that struggled to present the Middle East as the source of chemistry because such an admission also required an acknowledgement of the occult practices employed alongside chemical study, from the ancient rites of Egyptian temples to the quest for the philosopher's stone. In making this acknowledgement, historians would threaten the authority of chemistry as a rational science by challenging the boundary between science and magic that had been forged by a post-Enlightenment ideology that championed the rational and material over what some scientists regarded as irrational superstition (Butler 100; Owen 38–39). As a result, at least three different versions of the history of chemistry emerged during the Victorian period: those that incorporated, those that minimized, and those that outright dismissed chemistry's roots in alchemy and the mystical practices of ancient Egypt. The implications of locating chemistry's origins in this way resonated throughout the century, influencing the public image of chemistry as a pseudo-magical study, the occult revival's fascination with ancient Egyptians' ability to seamlessly blend the magical with the scientific, and chemistry's continued ambivalence toward the less salubrious aspects of its history.

This struggle to characterize the origins of chemistry and its associations with mysticism and the occult is perhaps most evident in Thomas Thomson's *The History of Chemistry* (1830). In the preface, Thomson explains that unlike other physical sciences, chemistry "sprang originally from delusion and superstition, and was at its commencement exactly on a level with magic" (1). In equating chemistry with magic in this way, Thomson is able to foreground the ambiguous nature of chemistry's past, which cannot be "passed over in silence" (i), even if he regards such beginnings as "rude and disgraceful" because they have had too great an influence over chemistry's development (2). Thomson may expose the fallacy of the binary between "magic" and "science" prevalent in eighteenth- and nineteenth-century scientific discourse, reminding his readers of their shared origins, but he also explains that chemistry only "began to be useful to man" once it turned to

medicine and "sh[ook] off the trammels of alchymy [sic]" (1). Thomson carefully distinguishes between popular beliefs about chemistry and the reality of its history, explaining that "the most generally-received opinion" situates the origins of chemistry, "sometimes called *Chemia*," in Egypt, and that "the honour of its invention has been unanimously conferred upon Hermes Trismegistus" (9). This is the same mythical being that theosophists and occultists, including members of the Hermetic Order of the Golden Dawn, would claim as their ancient source (Owen 50), but Thomson discards this myth, stating that it "bears all the marks of a forgery of the fifteenth century" (13). By labelling the basis of popular opinion a "forgery," Thomson separates chemistry from myth and mysticism to focus instead on its earliest practical applications in metallurgy and medicine. Yet, despite his attempts to divide chemistry from alchemy, he still argues in favour of Egyptian science. The ancient Egyptians were, according to Thomson, "much further advanced . . . than the Greeks in the knowledge" of metals and metalwork (64), and he also attributes to this civilization significant developments in dyeing fabrics (93) and brewing beer (96). By focusing on these practical applications of chemical knowledge, Thomson deflects attention from the Egyptians' practice of alchemy, making no further reference to Egyptian mythology or mysticism, thus suggesting that those rites were completely unrelated to chemistry.

This deflection continues when Thomson turns to Middle Eastern practitioners of chemistry in the medieval period, whose discoveries of mineral acids, the properties of metals, and distillation lead Thomson to regard them as "the people to whom scientific chemistry owes its origin" (110). By "scientific chemistry," Thomson refers to the techniques and methodology that he and his contemporaries still employ, and he adds that these practitioners applied "the chemical processes" of alchemy "to the preparation of medicines, and thus opened a new and most copious source of investigation" (116). Thomson cannot ignore the slippage between chemistry and alchemy at this point in his history, and here he, perhaps inadvertently, indicates the influence of alchemy on the evolution of chemical study. He does the same in his discussion of the chemist Jabir ibn Hayyan (known to the Victorians as Geber), whose writings, Thomson argues, comprise "the first book of Chemistry that ever was published" and reveal that Jabir was "acquainted" with a "vast number of facts . . . which have generally been supposed to have been discovered long after his time" (iii). While Thomson states that Jabir is entitled "with some justice to the appellation of the father and founder of chemistry," he also apologizes for the way in which Jabir "satisfied himself with accounting for phenomena by occult causes, as was the universal custom of the Arabians" (132). For Thomson, Jabir's writings on the philosopher's stone demonstrate "a practice quite inconsistent with real scientific progress," and he concludes that "notwithstanding the experimental merit of Geber, his spirit of philosophy did not much exceed that of

his countrymen" (132). Regardless of his biases against mystical elements of Middle Eastern chemistry, Thomson does not diminish the significance of the fact that practitioners of the region developed chemistry nor, indeed, that the science developed alongside, rather than wholly distinct from, alchemy and mysticism. Thomson may attempt to divide chemistry and alchemy, but his history ultimately demonstrates how those boundaries have been blurred since chemistry's origins: Western chemistry relies on principles and processes developed for alchemy by Middle Eastern alchemists.

The legacy of these Eastern origins is, in contrast, almost threatening to Thomson's contemporary William Whewell, who ignores any suggestion of Eastern superiority over Western intellect and industry. In the *History of the Inductive Sciences* (1837), Whewell passes over the ancient Egyptians in favour of the Greeks because, he claims, the Egyptians "had no theory, and felt no want of theory" in relation to scientific phenomena (22). He explains that, while ancient Egyptians rationalized the Nile floods with myth and mysticism, ancient Greeks developed a theory based on observation and logic. In explaining the difference in this way, Whewell distinguishes "the active and acute intellect of Greece" (25), from which all Western philosophy derives, from non-European thought. He argues that "the African and Asiatic nations" never "drew so strong a line between a fabulous legend and a reason rendered" as did the Greeks and are thus incapable of distinguishing between fantasy—the mythical, supernatural, or mystical—and "reason" borne of logical explanations for observed phenomena (25). With these statements, Whewell reveals that he can construct his history of an "inductive" science based in reason and empiricism only by excluding anything that threatens his post-Enlightenment ideals, yet this threat conveniently encompasses all Eastern civilizations and systems of belief even as it overlooks the mysticism and mythology that influenced the Greeks. Whewell advances a Eurocentric history of science that forges a strict boundary between what he views as Western logic and Eastern superstition, mysticism, and irrationality, excluding and including information only as it supports his belief in Western superiority.

Whewell carries this division into his dismissal of the scientific developments made by medieval practitioners of the Middle East, this time with the excuse that their practice fails to adhere to his ideal of the tenets of Western scientific method. In his discussion of the history of chemistry, he explains that

> the formation and realization of the notions of *analysis* and of *affinity*, were important steps in chemical science, which . . . it remained for the chemists of Europe to make at a much later period. If the Arabians had done this, they might with justice have been called the authors of the science of chemistry; but no doctrines can be adduced from their works which give them any title to this eminent distinction. (256)

Even if presented with evidence that Middle Eastern practitioners made significant advancements in the science, Whewell only "might" justly regard them as the "authors" of chemistry. He thus denies Eastern authority to produce knowledge, be it in chemistry or in "botany, anatomy, zoology, optics, [and] acoustics," the advancements of which were, following the Greeks, "left for the Europeans of the sixteenth and seventeenth centuries" to develop further (257). Whewell affirms that Middle Eastern practitioners "followed their Greek leaders" in their studies of scientific phenomena and were only capable of repeating what had already been achieved by the Greeks (258). He characterizes Eastern practitioners as subservient "pupils" to the Western "masters," adhering to a hierarchy in which Europeans will always be the superior creators, technicians, and innovators (259). Whewell justifies his exclusion of Middle Eastern practitioners by stating his belief that they "were completely devoured by the worst habits of the stationary period,—Mysticism and Commentation" and were thus incapable of producing new and useful knowledge (258). Whewell highlights examples of Eastern mysticism in order to universally reject any developments in science made outside the West. This rhetoric corresponds to—and ultimately informs—not only the racism expressed by Horace Holly in *She* but also the extreme narrowness with which Whewell defines science as wholly divorced from any mystical or occult influence.

Just as Whewell refuses to acknowledge alchemy as "the mother of Chemistry" because of its mystical elements (232–33), he explicitly rejects Middle Eastern developments in chemistry even though, just seven years prior, Thomson argued the opposite in his more specialized history of chemistry. Unlike Whewell, Thomson reserves a full chapter for the developments of Middle Eastern practitioners, noting how these practitioners possessed a superior degree of knowledge to their European contemporaries. For instance, Thomson states that the physician Avicenna had the highest reputation "of all medical practitioners . . . next to Aristotle and Galen" until Paracelsus (133). In addition to placing Avicenna alongside leading Western philosophers, Thomson adds that Jabir's discovery of potassium nitrate demonstrated the "superiority of the Arabians over the Europeans in chemical knowledge" (124). In this account of chemistry's history, Middle Eastern physicians possess considerable authority, and although Thomson disagrees with their practice of blending the mystical and the concrete, he demonstrates how their methods of analysis and experimentation, still employed in nineteenth-century laboratories, contributed to the evolution of modern science. Meanwhile, Whewell actively erases Middle Eastern practitioners from his history, employing the same rhetoric as those who sought to exclude women from scientific study, with his claim that "there is no Arabian name which any one has thought of interposing between Archimedes the ancient, and Steveinus and Galileo the moderns" (259), a claim that Thomson's history shows to be false. This difference results in two opposing accounts of

history that independently attempt to define chemistry and classify its legitimate and illegitimate developments based on the beliefs of each historian. In the process of constructing this history, these scientists also reveal a need to affirm the authority of Western philosophy, knowledge, and materialism in the face of threats from an Eastern Other.

Ultimately, it was Thomson's rather than Whewell's history that later authors adopted well into the twentieth century; regardless of the growing tensions between Britain and the Middle East, as well as between scientific materialists and Theosophists or occultists, histories of chemistry seem to become more accepting of Middle Eastern and occult influences. In 1891, Ernst von Meyer states that "the Egyptians stand out from among the earlier civilized nations as having usefully applied their knowledge of chemical processes," although these were still "acquired by chance observations" (10) and "applied for their practical results alone," without "the object of deducing any comprehensive scientific explanation from them" (1). Although von Meyer identifies the Middle Eastern ancients' lack of investigative, inductive logic in their scientific endeavours, he, unlike Whewell, adds that "the earliest cultured European nations, the Greeks and Romans, . . . owed most of their knowledge of chemical facts to the peoples just named" (1), thus overturning Whewell's hierarchy of "pupil" and "master" to favour Eastern practitioners. The ancient Egyptians "stand out" for von Meyer because their civilization was "a centre of the higher culture" (23) that he calls "the mother-land of Alchemy" (21). Von Meyer expresses no concern about chemistry's associations with alchemy, mysticism, mythology, or the Middle East; indeed, he calls alchemy "a divine art" and describes what ancient peoples believed chemistry could achieve, such as the transmutation of metals, without critique (25). This objectivity carries into his discussion of Middle Eastern practitioners, whose work, while based in alchemical theory, "attained to a marvellous growth" of chemical knowledge while "culture remained at its lowest ebb in most European countries" (27). In von Meyer's version of history, ancient Egypt and medieval Arabia are not the irrational and superstitious civilizations that Whewell describes but rather the cornerstones of Western philosophy and science. They furthermore mark major, rapid developments in scientific study during which mystical practices resulted in major practical innovations. By not repressing chemistry's ties to the occult, von Meyer participates in the erosion of boundaries between science and the occult, and East and West, that scientists like Whewell had worked to embed in nineteenth-century ideology, thus revealing the changing face of the culture of science at the *fin de siècle*.[5]

This acknowledgement of Middle Eastern influences also appears in the work of scientific populists, whose lectures in the history of chemistry highlight the significance of such influences. A newspaper report about an 1880 lecture by C. Carrington Bolton describes him as asserting that "the first written records of alchemy proceed from Arabic sources" that "laid the

foundation of chemistry" (qtd. in "Alchemy and Chemistry" 2). It was not until later in his lecture that Bolton explained how "some experimenters threw off the trifling deceptions" of alchemy in favour of "the legitimate pursuit of chemistry" (2). Yet even here, according to the report, Bolton ascribed a close relationship to the "art" of alchemy and the science of chemistry, indicating that "in ancient times chemical science existed side by side with the superstitions of alchemy," thus emphasizing the close relationships between chemistry and alchemy or between science and what Bolton considers "superstition," which could include mysticism, the occult, or even magic (2). Four years later, a Professor Dewar of the Royal Society similarly blended discussion of chemistry and alchemy, only he reached back to the ancient Egyptians, who "were acquainted with many chemical facts as phenomena as long ago as about B.C. 2000, as could be proved by their extant monuments" and "the walls of their tombs" (qtd. in "Alchemy" 10). According to a report of his lecture in the *Times*, Dewar linked the history of chemistry to Egyptian mythology, explaining that "Thoth—the Hermes of the Greeks—. . . was the tutelary god of the science, and the writings conned by the alchemist were styled in honour of him the Hermetic books" (qtd. in 10). While Thomson had, in 1830, characterized these Hermetic books as forgeries, the mythical texts remained central to the nineteenth-century understanding of the history of chemistry, rooting the science in its most mystical aspects. These lectures demonstrate an increasingly narrowing gap at the end of the nineteenth century between science and the occult, of which Victorian audiences were well aware, and which they would explicitly link with the Middle East.

POPULAR VARIATIONS

In the 1850s and 1860s, popular periodicals increasingly became a significant platform for discussions of chemistry's history, enabling critics and other intellectuals to explore the history of science for a non-specialist audience. Unlike the works of science historians, which were written primarily for other scientists, these articles not only expanded chemical discourse beyond the institution—thus enabling other marginalized figures, particularly women, to enter the conversation—but also greatly influenced public perceptions of chemistry. This role was particularly true for articles published in Charles Dickens's *Household Words*; while the periodical's high sales did not ensure wide readership of its articles on chemistry, their presence does suggest a certain degree of interest in the history of chemistry and, more specifically, its links to alchemy. These articles thus had some measure of control over public perceptions of chemistry, despite the potential for bias, inaccuracy, and sensationalizing. It is important to note that the periodical articles I examine here were not written by scientists but by journalists, authors of fiction, and people of letters whose background in science relied on whatever education they had received and whatever books they

had consulted on the subject. Consequently, the articles are of interest less for their scientific content than for their presentation of that material. Each creates a distinct narrative of the history of chemistry that is influenced by contemporary politics, ruling ideologies, and artistic or social movements, with the result that, unlike later science histories that draw upon Thomson's more inclusive narrative, the popular press appears more divided in its characterization of Middle Eastern practice.

In "Alchemy and Gunpowder" (1850), Dudley Costello frames chemistry within imperialist discourse so that he elevates British innovations while devaluing those of the East. He contends that Middle Eastern physicians prevented chemistry from evolving beyond superstition and impossibility because "an Eastern imagination, ever prone to heighten the effects of nature, was not slow to ascribe a preternatural force to this medicine" (135). This tendency resulted in "the doctrine of transmutation," which "entangled the feet of science in mazes, from which escape was only effected, after the lapse of centuries of misdirected efforts" (135–36). By highlighting the negative influence of Middle Eastern practitioners on chemistry's development, Costello, like Whewell, suggests that chemistry did not fully emerge as a science until practised by Europeans. More specifically, he credits Germany and England with the development of chemistry as a science, explaining that "two men . . . stand first . . . in literary and scientific knowledge. One was a German, the other an Englishman; the first was Albertus Magnus, the last Roger Bacon" (136). Costello emphasizes Bacon's invention of gunpowder as a revolutionary weapon made possible by the study of chemistry. For this, he appears to draw from his experience serving with the colonial army in the 1820s and, by extension, from the imperialist ideology upheld by the British army.[4] Costello's revisions to the history of chemistry attempt to improve the science's public image by distancing it from its mystical, Eastern origins and reinscribing it as a practical, Western science. More importantly, Costello characterizes chemistry as a point of English national pride that has made possible significant developments employed by the British military and the colonial enterprise. Even while Costello devalues Eastern knowledge—and, in fact, appropriates it for the English—he celebrates the development of the weapons that the British use to physically subjugate Eastern peoples in India, China, and Afghanistan.[5] This biased reconstruction of history reveals the degree to which, outside of scientific discourse, the narrative of chemistry's origins could be altered to support a popular political agenda—one that, in this case, was directly threatened by Middle Eastern authority over scientific knowledge.

With the occult revival, a narrative of the history of chemistry emerges that not only more smoothly integrates chemistry with alchemy and magic but also gives full credit to Middle Eastern practitioners for the development of chemistry as a specifically modern science. In "Specimens of the Alchemists" (1855), the novelist Geraldine Endsor Jewsbury stresses the influence of

Middle Eastern practitioners on later European alchemists. Although she initially characterizes the former as "a swarm of locusts" who destroyed the library at Alexandria, she later explains that they "gave" chemistry "the shape and dignity of a science" (457) because they made "the great step which separates ancient science from modern research" with their development of distillation, filtration, and modern nomenclature (458). Jewsbury builds from Thomson's history, calling the tablet of Hermes Trismegistus "if not a pious, at least a scientific, fraud" (457). However, she ultimately highlights the magical potential of science, stating how, for instance, alchemical texts "speak their unknown tongue with so much grave and earnest emphasis that it is difficult not to believe they are pointing out the road to a mysterious, unknown world, full of strange beauty—if one only could understand their directions!" (457). She shifts between an objective, scientific register and one that regards science as "mysterious," "unknown," and "full of strange beauty"—terms that liken science to a form of magic. She similarly asserts that modern chemistry is "indebted" to the "dreams" of the alchemists "for many valuable realities," but she adds that these realities are "little, if at all, inferior to the red powder" of the philosopher's stone (459). This history of chemistry hovers between the scientific and the mystical, demonstrating how both these aspects of Middle Eastern *al-chemia* have been equally significant to the development of chemistry while also suggesting that the continued integration of science and mysticism would lead to further major achievements in chemistry.

In an 1887 article from the American journal the *Open Court*,[6] Georgia Louise Leonard constructs the history of chemistry from an occultist perspective, eliding all boundaries between science and magic. She immediately positions herself in opposition to "scientists, historians, archaeologists, even Egyptologists [who] ignore all mention of the occult, or speak of it only with derision" (470) even though, in her mind, all the major sciences the Egyptians studied "bore an occult aspect" (472), particularly chemistry and alchemy (497). Leonard explains that the ancient Egyptian priest or magician "was the scientist of his time" in a quest for "the attainment of wisdom, and command over the hidden powers of nature" (472). To the ancients, at least in Leonard's view, magic was what Victorians would call science, and vice versa. However, she also describes the ancient Egyptians as "an Aryan off-shoot from some primeval race whose history is lost in the night of time, and that *from that race* they inherited their knowledge of the arts and the occult forces of nature" (472, emphasis mine). This claim distinguishes the ancient Egyptians from African or Semitic peoples, including modern Egyptians under British colonial rule, who were frequently stereotyped as "backward and indolent" (Bulfin 426) or as examples of racial degeneracy (Brantlinger 161). Leonard's article showcases the effect of these stereotypes on the occult revival's appropriation of Egyptian culture in her claim that the ancient Egyptians were "imported in pre-historic times . . . from abroad" (472) or,

as her use of "Aryan" suggests, from Indo-European origins. She explains that this point is "proper" to make in order to show "that the claim of this people to a high antiquity and an exact and elaborate science, is by no means preposterous" (472). Leonard assumes that her readers would not believe the African or Semitic races capable of producing a "highly civilized nation" of "power and grandeur," and so she hastens to reposition Egyptian culture and scientific innovation away from the colonized Other to more respectably European origins (471). In doing so, Leonard affirms colonial ideology and the racist foundations of nineteenth-century physical anthropology, placing the knowledge and authority of "an exact and elaborate science" in purely Caucasian hands to maintain the hierarchies of race necessary for the British and American colonial enterprise.

EGYPTIAN SCIENCE AND VICTORIAN MAGIC

Leonard's discussion of the ancient Egyptian "occult sciences" is characteristic of texts associated with the occult revival, which challenge Western materialism even as they, perhaps inadvertently, perpetuate the colonial enterprise in their cultural appropriation of Egyptian mythology and mystical rites. Occultist groups like the Hermetic Order of the Golden Dawn structured their practices and based their "magical language and symbolism" (Butler 62) on Egyptian religion and mythology (Butler 96; Owen 58). The so-called secret chiefs of the Order were believed to be "alchemists whose practices were part of an unbroken hermetic tradition going back to ancient Egypt" (Denisoff 4), thus tracing a direct lineage of shared scientific and mystical practice. Although Thomson and Jewsbury expose the "emerald tablet" of Hermes Trismegistus as a fraud, nineteenth-century occultists "begin the Hermetic story [with] Hermes . . . Egypt's great and far-reputed adeptist king" (Atwood 5) whose books, the *Corpus Hermeticum*, apparently "promised illimitable supernatural powers, ultimately over life and death" (Luckhurst, *Mummy's* 213). Victorian occultists became "invested in recovering the lost wisdom and supposedly immense supernatural powers of the ancient Egyptian priests" because they "regarded Ancient Egypt as the seat of a lost lore of fabulous magical powers," including alchemical and other forms of pseudo-scientific knowledge (Luckhurst, *Mummy's* 213). In order to rediscover the supposed lost wisdom and magical powers, occultists drew from the "archaeological and textual advances in the field of Egyptology" (Butler 98) that made ancient texts like *The Book of the Dead*, translated in 1896 by archaeologist Wallis Budge, accessible to wider audiences (Hebblethwaite xix; Luckhurst, *Mummy's* 232). However, in this process of translating and interpreting a colonial region's history, the British colonialist ideology that shaped Victorian Egyptology also influenced occultists' reinterpretations of ancient Egyptian culture. Consequently, despite their larger goals of dismantling the binary of science and magic, occultist writings on the origins of chemistry largely

isolate their characterizations of Egyptian mystical knowledge from the brown-skinned peoples of nineteenth-century Egypt.

I have chosen two texts from the occult revival that exemplify the ambiguous aspects of occultists' reinterpretation and appropriation of ancient Egyptian science: Helena Blavatsky's *Isis Unveiled* (1877) and Florence Farr's *Egyptian Magic* (1896). Both authors, the latter of whom would become a chief adept of the Order of the Golden Dawn in 1897, regard ancient Egypt as a major source of mystical knowledge, and Blavatsky, by attaching such a title as *Isis Unveiled* to her work, further suggests that she has the power to "unveil" this knowledge, including the scientific innovations of the ancient Egyptians, to her readers. Blavatsky argues that "Egypt is the birthplace and the cradle of chemistry," and she goes on to describe Egyptian innovations in science and technology, particularly the production of dyes and medicines (541).[7] However, she also contends that "what Egypt taught to others she certainly did not acquire by the international exchange of ideas and discoveries with her Semitic neighbours" because Egypt had "created wonders" while "proudly secluding herself within her enchanted domain" (515). With this, Blavatsky divorces Egypt from African and Middle Eastern influence, calling it an "enchanted domain" and a "fair queen of the desert," this latter phrase suggesting a "fair," or white, civilization (515). Thus, ancient Egypt becomes akin to the African civilizations of Haggard's adventure novels, where lost knowledge and magical powers thrive among the "fair" (*Isis* 515), only to be "wiped out by waves of savages" (Brantlinger 161) or "racial degeneration" (166). This act of isolating and idealizing ancient Egypt significantly influences how later authors like Haggard and Farr characterize the civilization, its advanced study of science, and its integrated practice of science and magic.

Similarly, Farr characterizes ancient Egypt as a fantastical civilization where priests studied hypnotism and "Spiritual Alchemy" as they sought to gain "supremacy over the Elements" (1). Such a goal may be far-reaching, requiring a level of hubris matched only by the mad scientists of fiction, yet it mirrors the nineteenth-century materialist ambition of measuring, classifying, and, ultimately, controlling the natural world and its elements—goals that perhaps best correspond with the practice of chemistry. This supremacy is not limited to a material control over physical substances; it is also coupled with a spiritual element that Farr refers to as "magic," the practice of which required "hard training" and "cleans[ing] from the stains of material illusions," not unlike the university-trained, self-abnegating nineteenth-century scientist (1). This magic, she states, was "among the Egyptians, regarded with a veneration hardly accorded to the highest Philosophy in modern times," blurring the divide Western materialism sought to maintain between rational science and any form of magic or mysticism (1). Farr highlights a close relationship between science and the occult that, she suggests, can persist into the nineteenth century with the revival of ancient rites

and practices; in this way, Farr demonstrates how occultist groups drew from sources beyond "the limits of Western power" and "the supports of governmental, military, or scientific institutions" to erode their authority over the classification of legitimate knowledge and practice (Luckhurst, "Knowledge" 200). To further erode this authority, Farr appropriates the language of nineteenth-century science in her description of the "principles of Egyptian Magic," referring to its "formula" and even its "evolution" to ultimately argue that Egyptian magic offers "a thoroughly scientific satisfaction" because it stresses "precise practical details" over "vague theories" (2). It is questionable whether such an appropriation bolsters Farr's argument or whether this use of materialist language ultimately betrays the need for these practices to be regarded as legitimate. Farr's text, like histories of chemistry past and present, repackages alchemy within a safely materialist rhetoric, but in so doing, also undermines her efforts to dismantle the post-Enlightenment distinction between science and magic.

Unlike Blavatsky and Leonard, Farr makes no reference to the race or evolutionary source of the ancient Egyptians and their knowledge, but her focus on the *ancient* mythology and rites of Egypt is still divorced from the contemporaneous state of that region. For Farr, Egyptian knowledge and power exist entirely in the past, ripe for revival by Western occultists in the Order of the Golden Dawn, hence her consistent use of the past tense when referring to Egyptian civilization. Alison Butler offers additional context for Farr's studies of Egyptian mysticism, explaining that Farr "imposed what little she garnered from reading the *Book of the Dead*, several other nineteenth-century texts on Egyptian civilization, and some Graeco-Egyptian papyri, upon an already existent framework, established through her membership in the Golden Dawn" (96). Consequently, *Egyptian Magic* is little concerned with Egypt itself—its lived history or present conditions—but instead appropriates a fragmented history of the colonized Other to advance Farr's agenda of using historical sources to legitimize mystical practices. Thus, Farr, like both Leonard and Blavatsky before her, portrays Egypt as a civilization of grandeur, infinite knowledge, and powerful mysticism, but such a vision is incomplete. It is merely an act of cherry-picking employed to validate modern reinterpretations of Eastern culture, philosophy, and religion, ultimately erasing the impact of this cultural appropriation on a region.

Although Blavatsky and Farr examine ancient Egyptian science in a context distinct from the concerns of nineteenth-century science historians, their characterizations of the Middle East reveal similar interests in the production of scientific knowledge and its adaptability for consumption by Victorian audiences. The history of chemistry challenges Victorian imperialism and materialism, leaving even those authors who openly acknowledge Egypt's accomplishments in science struggling to construct an acceptable historical narrative, be it to diminish the influence of mysticism and the

occult on modern science or to blatantly overlook the complex realities of Egyptian politics and demographics. In either case, the history of chemistry is controlled by Western authors working from minimal primary evidence to construct an image of "chemistry" and "Egypt" that supports pre-existing perspectives of the colonized spaces of Egypt and the Middle East. It is thus perhaps not surprising that Haggard's Ayesha and her fictional contemporaries threaten to invade Victorian Britain, the nation that both colonized their homeland and appropriated, if not erased, their authority over scientific knowledge—both experimental and mystical. However, such fictional representations only literalize anxieties already working beneath the surface of the histories, articles, and other non-fiction texts I have examined here—in particular, the fear that knowledge derived from Eastern and mystical sources would prove too unstable and threatening, not only to British readers but also to the supremacy of Western, materialist science.

Notes

1 Two later Imperial Gothic novels, Richard Marsh's *The Beetle* (1897) and Bram Stoker's *The Jewel of Seven Stars* (1903), similarly link chemistry with ancient Egyptian occultists, and these texts are even more explicit regarding the appropriation of Eastern knowledge by modern Western scientists. See Hebblethwaite xxii–xxiii and Morrisson 25–27.

2 See also Luckhurst, *Mummy's Curse* 158; Said 206. In *The Beetle*, this list of traits is explicitly associated with the "idolatrous sect" to which the creature belongs (297), but Kelly Hurley explains that it equally applies to how the Victorians viewed the Orient as a whole (128).

3 One question that arises from von Meyer's representation of chemistry's history is to what degree Continental—in this case German—and British scientists differ in their opinions regarding the Middle East and the occult. British colonial interests in the Middle East, particularly in Egypt, appear to have shaped British authors' portrayals of that region, its history, and its influence on the development of chemistry.

4 While Costello's army career would have a major influence on perspective, it is also important to take into account, as Edward Said argues, that "nearly every nineteenth-century writer . . . was extraordinarily well-aware of the fact of empire" and "had definite views on race and imperialism" that are reflected in their writings (14).

5 Britain had been involved in the First Opium War and the first Anglo-Afghan War from 1839 to 1842. The Indian Mutiny would follow in 1857 as a consequence of British oppression.

6 *The Open Court* declares itself a journal "devoted to the work of establishing ethics and religion upon a scientific basis." Leonard's article is more esoteric than the periodical's other submissions, which focus primarily on contemporary science, religion, and ethics, with little related to spiritualism or the occult. The complete lack of response to Leonard's article in later issues suggests that "the occult sciences of Ancient Egypt" were of lesser interest to the periodical's readers than the more contentious topics of evolution and psychology.

7 In the 1889 essay "Alchemy in the Nineteenth Century," Blavatsky, claiming new evidence, instead ascribes the origins of alchemy to ancient China (8).

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